

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims 1, 8 and 11 in accordance with the following:

1. **(previously presented)** An apparatus for transmitting a graphic signal generated by a graphic signal generation unit to a display unit, the apparatus comprising:

an optical transmission medium;

a transmission interface unit which:

compares a current graphic signal with a previous graphic signal and compresses the current graphic signal to generate compressed transmission data based on the comparison, wherein the current graphic signal is compressed to an MSB bitstream where the comparison identifies a change between the current graphic signal and the previous graphic signal and is compressed to an LSB bitstream where the comparison identifies no change between the current graphic signal and the previous graphic signal,

~~modulates the transmission data together with header information into an optical signal for transmission via a single channel, and~~

transmits the optical signal via a single channel of the optical transmission medium; and

~~an optical transmission medium which communicates the transmitted optical signal; and~~

a reception interface unit which regenerates a graphic signal based on the transmission data and the header information contained in the optical signal and transmits the regenerated graphic signal to the display unit.

2. **(previously presented)** An apparatus for transmitting a graphic signal generated by a graphic signal generation unit to a display unit, the apparatus comprising:

a transmission interface unit which compares a current graphic signal with a previous graphic signal to generate compressed transmission data based on the comparison, modulates the transmission data together with header information into an optical signal for transmission via a single channel, and transmits the optical signal, the transmission interface unit comprising:

an image compression processor which outputs the transmission data and the header information based on the comparison,

a DC-balancing encoding unit which DC-balances the transmission data and header information,

a serialization unit which serializes the DC-balanced transmission data and header information, to output a serialized signal, and

an optical transmission unit which converts the serialized signal into the optical signal and transmits the optical signal to the optical transmission medium;

an optical transmission medium which communicates the transmitted optical signal; and

a reception interface unit which regenerates a graphic signal based on the transmission data and the header information contained in the optical signal and transmits the regenerated graphic signal to the display unit.

3. **(original)** The apparatus of claim 2, further comprising a first memory which stores the previous graphic signal.

4. **(original)** The apparatus of claim 2, wherein the image compression processor outputs a bitstream comprising the compressed transmission data and header information, the header information comprising:

a bitstream indicating position information of the current graphic signal;

a data enable bit of the current graphic signal;

a bitstream comprising a horizontal/vertical synchronization signal,

a control bitstream; and

an error correction bitstream for correcting errors of the bitstreams.

5. **(original)** The apparatus of claim 2, wherein the image compression processor compresses the current graphic signal to an MSB or an LSB bitstream according to whether the current graphic signal has portions which differ from the previous graphic signal, and outputs the MSB bitstream or the LSB bitstream as the transmission data.

6. **(original)** The apparatus of claim 5, wherein the image compression processor outputs one of the MSB bitstream, the LSB bitstream, and another bitstream as the transmission data, where the another bitstream is determined by a predetermined set command.

7. **(original)** The apparatus of claim 2, wherein the image compression processor comprises:

an image compression block which outputs the transmission data and outputs the predetermined header information based on the transmission data;

an error correction encoding unit which encodes information for correcting error of the header information;

a shifting unit which shifts out the encoded error-corrected header information if the encoded header information has a predetermined minimum number of bits; and

a switching unit which switches the transmission data and the shifted header information based on a clock input to combine the transmission data and the shifted header information.

8. **(currently amended)** An apparatus for transmitting a graphic signal generated by a graphic signal generation unit to a display unit, the apparatus comprising:

a transmission interface unit which:

compares a current graphic signal with a previous graphic signal and compresses the current graphic signal to generate compressed transmission data based on the comparison,

modulates the transmission data together with header information into an optical signal for transmission via a single channel, and

transmits the optical signal; and

an optical transmission medium which communicates the transmitted optical signal; and

a reception interface unit which regenerates a graphic signal based on the transmission data and header information contained in the optical signal and transmits the regenerated graphic signal to the display unit, the reception interface unit comprising:

an optical reception unit which converts the optical signal received from the optical transmission medium into an electrical graphic signal,

a de-serialization unit which converts the electrical graphic signal into a parallel graphic signal,

a decoding unit which decodes the parallel graphic signal into a graphic signal corresponding to the compressed transmission data and the header information, and

an image decompression processor which decompresses the decoded signal, regenerates a graphic signal corresponding to the current graphic signal based on the decoded

graphic signal and transmits the regenerated graphic signal to the display unit.

9. **(previously presented)** The apparatus of claim 8, further comprising a second memory which stores the regenerated graphic signal.

10. **(previously presented)** The apparatus of claim 8, wherein the image decompression processor comprises:

a demultiplexer which demultiplexes the decoded graphic signal output from the decoding unit into the transmission data and the header information;

a shifting unit which serially shifts out the demultiplexed header information;

an error correction decoding unit which decodes an error of the encoded header information if the shifted header information has a predetermined minimum number of bits; and

an image decompression block which regenerates the graphic signal from the demultiplexed transmission data and the decoded header information.

11. **(currently amended)** A method of transmitting a graphic signal generated by a graphic signal generation unit to a display unit using an optical transmission medium, the method comprising:

comparing a current graphic signal and a previous graphic signal, to identify a change between the current graphic signal and a previous graphic signal; ~~and generating compressed transmission data based on the comparison~~

compressing the current graphic signal to an MSB bitstream if a change is identified and compressing the current graphic signal to an LSB bitstream if no change is identified;

modulating the compressed graphic signal ~~transmission data together with header information into an optical signal for transmission via a single channel;~~

transmitting the optical signal via a single channel of the optical transmission medium;

regenerating a graphic signal based on the transmission data and the header information included in the optical signal; and

transmitting the regenerated graphic signal to the display unit.

12. **(original)** A method of transmitting a graphic signal generated by a graphic signal generation unit to a display unit using an optical transmission medium, the method comprising:

comparing a current graphic signal and a previous graphic signal and generating

compressed transmission data based on the comparison,  
modulating the transmission data together with header information into an optical signal for transmission via a single channel;  
transmitting the optical signal via the optical transmission medium;  
regenerating a graphic signal based on the transmission data and the header information included in the optical signal; and  
transmitting the regenerated graphic signal to the display unit,  
wherein the modulating comprises:  
DC-balancing the transmission data and header information,  
serializing the DC-balanced transmission data and header information, and  
converting the serialized DC-balanced transmission data and header information into the optical signal.

13. **(previously presented)** The method of claim 12, wherein, the header information comprises:

- a bitstream indicating a position of the current graphic signal,
- a data enable bit of the current graphic signal,
- a horizontal/vertical synchronization signal,
- a control bitstream, and
- an error correction bitstream for correcting error of the bitstreams.

14. **(original)** The method of claim 13, wherein the generating of the transmission data comprises:

- compressing the current graphic signal to an MSB or an LSB bitstream according to whether the current graphic signal differs from the previous graphic signal and
- outputting the MSB bitstream or the LSB bitstream as the transmission data.

15. **(original)** The method of claim 14, further comprising outputting one of the MSB bitstream, the LSB bitstream and another bitstream as the transmission data, wherein the another bitstream is output by a predetermined set command.

16. **(original)** The method of claim 12, further comprising:

- correcting an error of the header information and encoding the error-corrected

header information;

shifting the encoded error-corrected header information into a predetermined serial bitstream if the encoded header information has a predetermined minimum number of bits; and

switching the transmission data and the shifted header information.

17. **(original)** A method of transmitting a graphic signal generated by a graphic signal generation unit to a display unit using an optical transmission medium, the method comprising:

comparing a current graphic signal and a previous graphic signal and generating compressed transmission data based on the comparison,

modulating the transmission data together with header information into an optical signal for transmission via a single channel;

transmitting the optical signal via the optical transmission medium;

regenerating a graphic signal based on the transmission data and the header information included in the optical signal; and

transmitting the regenerated graphic signal to the display unit,

wherein the regenerating of the graphic signal comprises:

converting the optical signal into an electrical signal,

converting the electrical signal into a parallel signal,

decoding the parallel signal into the transmission data and the header

information, and

decompressing the compressed decoded transmission data based on the header information to generate a decompressed graphic signal.

18. **(original)** The method of claim 17, wherein the converting of the electrical signal to a parallel electrical signal comprises:

demultiplexing the electrical signal into the transmission data and the header information;

and

serially shifting out the demultiplexed header information.

19. **(original)** The apparatus of claim 8, wherein the de-serialization unit comprises: a clock divider which outputs a clock signal having a lesser frequency than an input clock;

a D-flip flop which synchronizes the electrical graphic signal with the lesser frequency clock signal;

a shift register which stores data output from the D flip-flop and shifts out the stored data when the stored data has a predetermined number of bits; and

a parallel register which stores the shifted out data.

20. **(original)** An apparatus for transmitting graphic signals via a single channel optical transmission medium, the apparatus comprising:

a processor which compares a current one of the graphic signals with a previous one of the graphic signals and outputs:

transmission data comprising a first number of least significant bits (LSBs) of the current graphic signal if the current graphic signal is the same as the previous graphic signal, or

transmission data comprising a second number of most significant bits (MSBs) of the current graphic signal if the current graphic signal differs from the previous graphic signal, and

header information comprising information which indicates whether the transmission data comprises the LSBs or the MSBs;

an error correction encoder which adds error correction coding information to the header information;

a multiplexer which combines the error correction coded header information and the transmission data into a parallel bitstream;

a serializer converts the parallel bit stream into one serial bitstream; and

an optical converter which converts the one serial bitstream to a serial optical signal.

21. **(original)** The apparatus of claim 20, wherein the current graphic signal and the previous graphic signal are adjacent frames and the processor compares corresponding pixel data of the adjacent frames.

22. **(original)** The apparatus of claim 20, wherein the current graphic signal and the previous graphic signal are corresponding lines of adjacent frames and the processor compares corresponding pixel data of the corresponding lines.

23. **(original)** The apparatus of claim 20, wherein the current graphic signal and the

previous graphic signal are a plurality of corresponding lines of adjacent frames and the processor compares corresponding pixel data of the plurality of corresponding lines.

24. **(original)** The apparatus of claim 20, wherein the transmission data comprises R, G and B channels of the graphic signal and the number of MSBs or the number of LSBs transmitted is one half a number of bits assigned to a channel.

25. **(original)** The apparatus of claim 20, wherein the transmission data comprises R, G and B channels of the graphic signal and the number of MSBs or the number of LSBs transmitted is one fourth a number of bits assigned to a channel.

26. **(original)** The apparatus of claim 20, wherein the information which indicates whether the LSBs or the MSBs are included in the transmission data is a predetermined number of bits having a first value where MSBs are included and a second value where LSBs are included.

27. **(previously presented)** An apparatus for recovering a graphic signal from a serial bit stream, the serial bitstream comprising a compressed graphic signal having one of a first number of most significant bits (MSBs) and a second number of least significant bits (LSBs) and error correction coded (ECC) header information which designates whether the compressed graphic signal comprises the MSBs or the LSBs, the apparatus comprising:

a phase locked loop which phase locks the serial bit stream to generate a clock signal;

a shift register which shifts out the serial bits into a parallel bit stream according to the generated clock signal;

a demultiplexer which separates the parallel bit stream into a first parallel bit stream corresponding to the compressed graphic signal and a second parallel bit stream corresponding to the ECC header information;

an ECC decoder which recovers header information from the second parallel bit stream which designates whether the first parallel bit stream comprises the MSBs or the LSBs; and

a decompressor which regenerates a graphic signal based on the first parallel bitstream and the recovered header information.

28. **(original)** An apparatus for compressing a graphic signal for transmission via a



single channel optical transmission medium, the apparatus comprising:

a first memory which stores a first graphic signal;

a processor which compares a second graphic signal with the stored graphic signal and outputs:

transmission data comprising a first number of least significant bits (LSBs) of the second graphic signal if the second graphic signal is the same as the stored graphic signal, or

transmission data comprising a second number of most significant bits (MSBs) of the second graphic signal if the second graphic signal differs from the first graphic signal, and

header information comprising information which indicates whether the transmission data comprises the LSBs or the MSBs.

29. **(original)** The apparatus of claim 28, further comprising:

an error correction encoder which adds error correction coding information to the header information; and

a multiplexer which combines the error correction coded header information and the transmission data into a common bitstream.

30. **(original)** The apparatus of claim 28, wherein:

the graphic signal comprises components corresponding to a plurality of channels; and the processor further comprises:

a plurality of image compression modules, each of which compares one of the plurality of component signals of the first graphic signal with a respective one of corresponding component signals of the second graphic signal to output respective components of the transmission data and a respective indicator signal based on the respective comparisons, and

a logic circuit which combines the respective indicator signals to output the header information which indicates whether the transmission data comprises the LSBs or the MSBs.